

# **BAKER**

## **Products**



### ***Baker M-412 Planer/Moulder User Manual***

**Ellington Industrial Supply, Inc.**

P. O. Box 128

Ellington, Missouri 63638 USA

Web site: [www.baker-online.com](http://www.baker-online.com) E-mail: [info@baker-online.com](mailto:info@baker-online.com)

Phone: (573) 663 – 7711 Fax: (573) 663 – 2787



## Table of Contents

Warranty	3
Defective Parts	4
Service Policy	4
Rules for Safe Operation	5
Safety Expectations for Operating Power Equipment	5
Control of Hazardous Energy (Lockout / Tagout)	6
Introduction	7
Safety Precautions	7
Installing and Connecting Power	7
Connecting the Power	8
Checking Rotation	8
Control Panel Operation	9-10
Setting the Table Height in the Controller	11-14
Safety Switches	15-17
Setting Up the Machine	18-24
Setting the Left Side Cutter Side Pressure Bearing	25
Removing Side Heads	26-27
Removing and Inserting Knives in Side Cutter Head	28-29
Moving the Left Side Cutter	30-32
Horizontal Heads	32
Straight Planing Knives	32-33
Profile Knives in Horizontal Heads	33-34
Feed Speed Adjustment	37
Wiring Diagram	38
See Parts List Book for Parts and Assembly Drawings	2-89



## Warranty

Ellington Industrial Supply, Inc. machinery is warranted against defects in material or workmanship starting from the date of shipment from the manufacturing plant.

This warranty is given solely to the "original purchaser" of the equipment and is in no way to be expressed or implied that it is transferable to any other parties without the written consent and approval from the CEO or Sales Manager of Baker Products.

Our one (1) year warranty period covers all items built at our manufacturing facilities including structural frame, cowlings, doors, shafting, dust chutes and guards.

We honor six (6) months of warranty coverage for miscellaneous vendor-purchased-supplied items including bearings, chain, sprockets, hydraulic components, etc.

Ninety (90) days of warranty coverage is provided on all electrical parts. All electrical components and wiring has been installed in accordance with the National Electrical Code (NEC) of the United States of America.

Ellington Industrial Supply, Inc. does not warranty this machine to meet any other requirements or jurisdiction of any electrical or safety codes of any other state, municipality, other country or jurisdiction. The purchaser assumes all risk and liability whatsoever resulting from the use thereof whether used singularly or in conjunction with other machinery or apparatus, including, but not limited to, all matters resulting from sawdust generation.

**Note:** *No warranty is provided on any electrical components or parts if equipment is powered or connected to a roto-phase electrical converter in order to create a three phase power supply for operational current from a single phase source.*

Any change in materials, design, or performance intended to improve any product of Ellington Industrial Supply, Inc. shall not obligate Ellington Industrial Supply, Inc. to modify any previously manufactured equipment.

This manual may contain details that if not properly followed can affect the performance of your equipment. You are responsible for proper use and maintenance of your equipment and we reserve the right to deny warranty work if deemed to be caused by a lack of proper maintenance or negligence by the owner or any of their employees.



## Defective Parts

Parts claimed defective must be returned freight prepaid, to our plant in Ellington, Missouri. Any part determined defective due to faulty workmanship or materials will be replaced or repaired (at our option) free of charge, F.O.B. our plant. This warranty does not cover expendable items (i.e. drive belts, band wheels, conveyor belting, blades, cutters, guides, etc.). Except as expressly provided herein, this warranty is in lieu of all other warranties, expressed or implied, including a warranty of merchantability or fitness for a particular purpose. This warranty is "void" if any part of the unit has been tampered with, modified, altered, or operated with parts other than supplied or recommended by Ellington Industrial Supply, Inc. In no event shall Ellington Industrial Supply, Inc. be liable for special, indirect, incidental or consequential damages, however arising, including but not limited to, the loss of earnings or the cost of downtime.

## Service Policy

In the event that you have any problems, call us at (573) 663-7711 any time between 8:00 AM and 5:00 PM (CST), Monday through Friday. A member of our trained staff will answer any questions you may have. We charge nothing for this service.

The only charge is for replacement parts not covered by warranty or after our inspection we deem that the problem is due to operator error or lack of proper maintenance or neglect.

If it is necessary for a member of our service department to visit your plant at your request, there will be a charge for this service. Call our service department for current prices.





## Retain this Information for your Records

Model Number: .....  
Serial Number: .....  
Date of Purchase: .....  
Power Source:.....  
Dust Removal: .....



## Rules for Safe Operation

The purpose of safety symbols and signage is to draw your attention to real or possible hazardous conditions that may exist when operating this equipment. Please remember that safety symbols and signage alone do not eliminate danger and are not substitute for proper training and education regarding operational hazards.

	This symbol and warning indicates a potentially hazardous situation, which, if not avoided, <u>will</u> result in death or serious injury.
	This symbol and warning indicates a potentially hazardous situation, which, if not avoided, <u>could</u> result in death or serious injury.
	This symbol and warning indicates a potentially hazardous situation, which, if not avoided, <u>may</u> result in minor or moderate injury.
	This warning provides notice and instruction regarding a potentially hazardous situation, which, if not avoided <u>will</u> result in serious injury or death.

## SAFETY EXPECTATIONS FOR OPERATING POWER EQUIPMENT

### ALWAYS...

- ENSURE THAT TRAINED PERSONNEL OPERATE, MAINTAIN AND REPAIR THIS EQUIPMENT
- **TURN POWER OFF AND LOCKOUT / TAGOUT PRIOR TO PERFORMING MAINTENANCE**
- KEEP WORK AREA CLEAN AND WELL LIGHTED TO MINIMIZE OR ELIMINATE HAZARDS
- KEEP CHILDREN AND VISITORS AWAY FROM OPERATING EQUIPMENT
- OPERATE THE EQUIPMENT AT THE RATE IT WAS DESIGNED FOR
- KEEP GUARDS IN PLACE WHEN OPERATING EQUIPMENT
- REMOVE TOOLS BEFORE RESUMING OPERATION
- USE PROPER EXTENSION CORD
- WEAR PROPER APPAREL AND AVOID LOOSE CLOTHING AND ACCESSORIES THAT COULD GET CAUGHT IN MOVING PARTS
- ALWAYS WEAR SAFETY GLASSES AND HEARING PROTECTION
- AVOID "KICK-BACK" BY KNOWING WHAT CONDITIONS CAN CREATE IT
- CHECK DAMAGED PARTS AND REPAIR OR REPLACE THEM IMMEDIATELY

### NEVER...

- LEAVE MACHINERY RUNNING OR UNATTENDED, ALWAYS TURN POWER OFF
- OPERATE EQUIPMENT WHEN TIRED, FATIGUED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL
- ALLOW UNTRAINED PERSONNEL TO OPERATE, MAINTAIN OR REPAIR THIS EQUIPMENT

**No list of safety expectations can ever be complete as every work environment is as different as are the people operating the equipment.**

**Always keep safety as your highest priority and always use this machine with caution and respect.**



## Control of Hazardous Energy – (Lockout / Tagout)

Lockout / Tagout (LOTO) refers to specific practices and procedures to safeguard employees from the unexpected energy, startup of machinery/equipment, or the release of hazardous energy during service or maintenance activities.

This requires that a designated individual turn off and disconnect the machinery/equipment from its energy source(s) before performing service or maintenance and that the authorized employee(s) lock and tag the energy-isolating device(s) to prevent the release of hazardous energy and take steps to verify that the energy has been isolated effectively.

### List of Related Terms

<b>Affected Employee</b>	An employee whose job requires them to operate a machine or piece of equipment on which service or maintenance is being performed.
<b>Authorized Employee</b>	A person who locks or implements a tagout system procedure on machines or equipment to perform service or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing service or maintenance.
<b>Energy Source</b>	Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
<b>Lockout</b>	The placement of a lockout device (such as a lock) on an energy-isolating device, in accordance with an established procedure that ensures the device and the equipment cannot be operated until the lockout device is removed.
<b>Servicing and / or Maintenance</b>	Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining or servicing machines or equipment. These activities include lubrication, cleaning or un-jamming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected energy, start-up of equipment or release of hazardous energy.
<b>Tagout</b>	The placement of a tagout device (such as a tag) on an energy-isolating device, in accordance with an established procedure that ensures the device and the equipment may not be operated until the tagout device is removed.

### Example of lockout tags, lockout hasp and keyed lock



### The Fatal Five Main Causes of Lockout/Tagout Injuries

1. *Failure to stop equipment*
2. *Failure to disconnect from a power source*
3. *Failure to dissipate (bleed, neutralize) residual energy*
4. *Accidental re-starting of equipment*
5. *Failure to clear work areas before re-starting*





## **Introduction**

### **Safety Precautions**

Read this instruction manual thoroughly before operating the machine. Be sure and understand the limitation and dangers that may occur during the operation of the machine.

Only allow authorized persons who have been properly trained to operate the machine.

Insure that the machine is properly connected to the power supply.

NOTE: Only a licensed electrician should install this machine.

Before the power supply is connected, be sure that all switches are in the off position.

Disconnect the electrical power before installing knives, heads or performing routine maintenance on the machine. Inspect the machine or change parts only when the machine is turned off.

Operate the machine only with all the safety guards and covers properly installed.

Never leave the machine operating unattended. When shutting the machine down, remain near the machine until all motion stops.

Check the machine for loose objects before operating the machine.

Keep the machine free from sawdust buildup - especially build up of sawdust around the motors.

## **Installing and Connecting Power**

For safe and effective operation confirm your incoming voltage and available amperage is equal to what the machine has been wired for at the factory.

Ensure all wiring and electrical connections are located in a safe position and away from any hazardous conditions.

A qualified electrician should complete electrical connections and check for correct motor directional rotation.

### **Installation Considerations**

Check the machine for transport damage. Inform the shipper and the manufacturer immediately if any damage is found. The machine should be set up in a dry location, on a level floor. When installing, keep in mind the length of the material you will be handling with the machine and allow for enough room for the material to pass through the planer without hitting a wall or another piece of equipment.

A chip blower is very important for this machine. Chips will impede your materials pass through the machine and affect the finish if not quickly sucked out of the machine. 4000 cfm is a good size blower for this machine. four 4" vacuum hoses are required for this machine, so keep in mind where they will be when installing the machine.



Have air available for blowing the machine free of chips if buildup is observed.

Make sure adequate power is supplied to this machine. If using a phase converter for power, be sure the proper size phase converter is available. Also, make sure adequate power is available to run both the machine and a chip collection system. Check with your electrician to insure the proper size wire is used to supply the machine.

Try to locate your off switches for auxiliary equipment such as a vacuum system close to the control panel on the machine. An electrical disconnect switch for killing the power to the machine is recommended.

### **Connecting the Power**

This machine should only be installed by a qualified electrician.

Make sure the correct voltage is supplied to the machine.

The electrical box is located on the rear of the machine.

### **Checking Rotation**

To check proper rotation of the motors, start only the feed motor first. Look at the direction the feed rollers are turning to determine if the machine's motors are turning in the correct direction. If these rollers are turning the wrong direction, the electrician should switch two of the wires to correct this. Check again with the feed motor only.





## Control Panel Operation

### Location

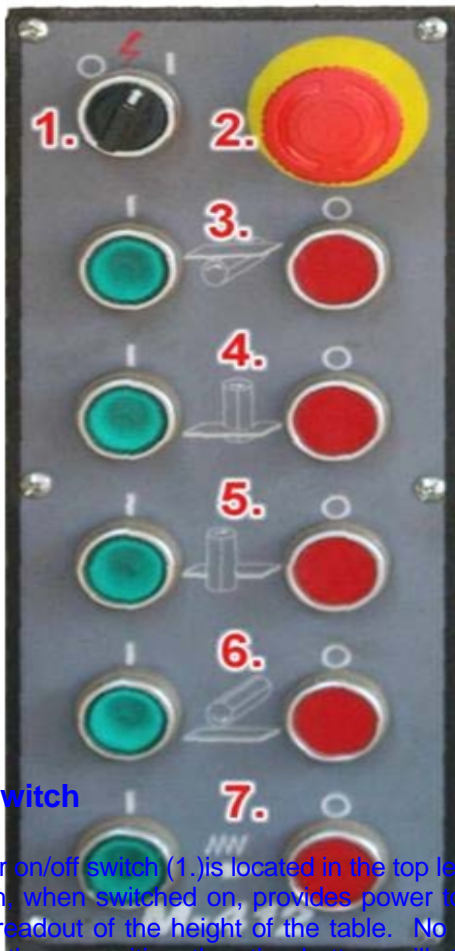
The control panel for the machine is located on the left side at the infeed end of the machine.



The panel consist of the master on/off switch, emergency stop switch, a digital controller (display with keypad) and five start/stop buttons.

### Start Buttons

Each motor has its own start and stop button. Pressing the start button(button on the left) for each motor will start the motor for that head. The last button is the feed motor and should be started last in the series.



## Master Switch

The master on/off switch (1.) is located in the top left hand corner of the panel, and controls the power to the machine. This switch, when switched on, provides power to the control panel. When switched on, the LED in the digital display will provide a readout of the height of the table. No other switches can operate if this switch is in the off position. When this switch is in the on position, the other buttons will start the motors when pressed.

When the machine is operating, this switch will turn all motors off at once if turned to the off position.

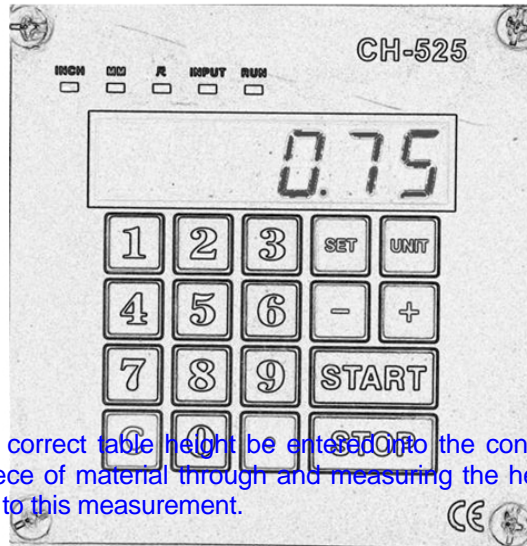
## Digital Controller

The digital controller provides the means to control the height of the table with a motor. The table can be raised and lowered with a crank handle manually as well.



The digital controller consists of a digital readout display and a numeric keypad.

## Setting the current table height in the controller

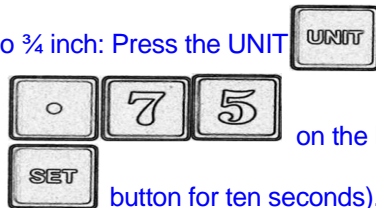


It is important that the correct table height be entered into the controller. To do this, determine the correct table height by running a piece of material through and measuring the height of the milled material. Then set the table height on the controller to this measurement.

To set the current table height in the controller:

Enter the height in numbers and then press the SET button and hold it ten seconds. You will see the display change to the correct number.

(e.g. to set the machine to  $\frac{3}{4}$  inch: Press the UNIT button until the inch LED is lit. Enter .75



on the keypad and then hold the SET

button for ten seconds).

NOTE: Once the controller is set to the correct height of the table, it will keep this setting even when the machine is turned off. You can manually move the table with the crank handle as long as the master switch is off. You will have to reset the height controller.



## Changing the Units Display

This controller displays three modes. You can set it to display in English or Metric by pressing the UNIT button. Watch the LED to see which unit the controller is currently set in. The third unit is not used in Canada or the U.S.

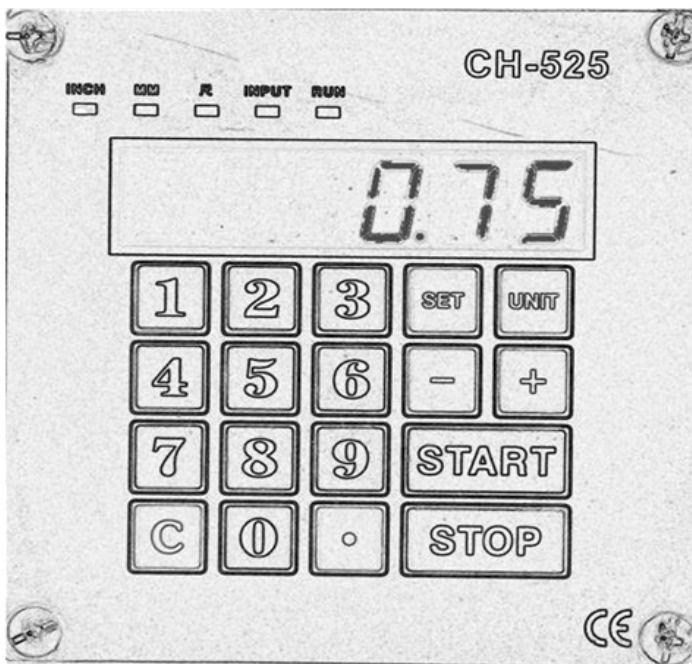


Note: Inches must be entered in decimals.

## Digital Controller Operation

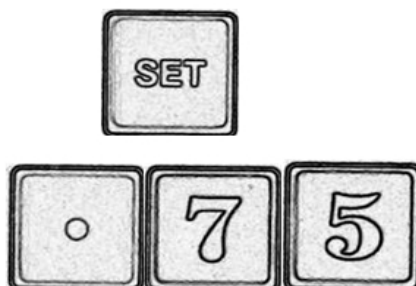
To change the height of the table with the digital controller the top door must be closed the master switch turned on. The emergency stop button cannot be engaged.

To change height of the table:



Press the SET button.

Press the height you desire the table to be. (e.g. to set to 3/4 inch, press the period, 7, and the 5 key)



Press START

The table will then move to that height.

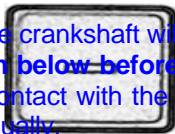
## Adjusting the table height

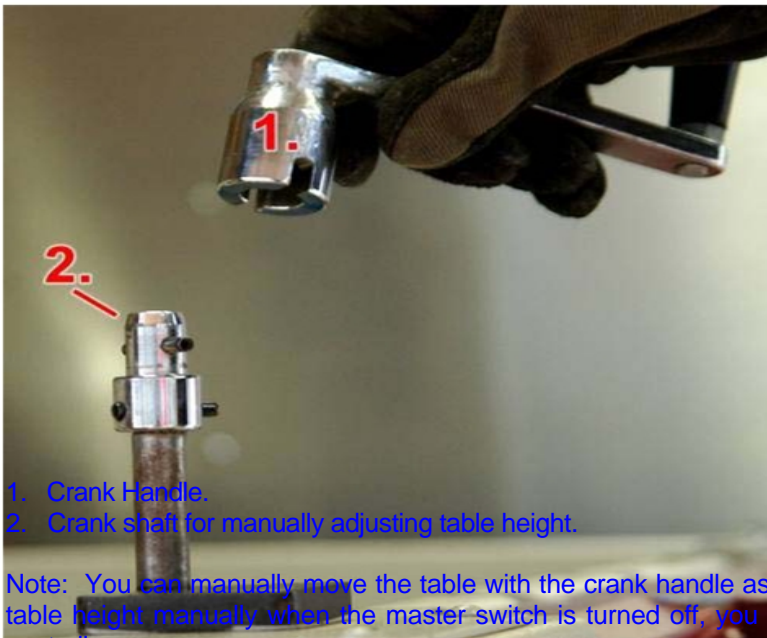
The table height can be adjusted using the arrows on the keypad as well. Instead of typing in a number, you can press



the min or plus key and move the table up(minus key) or down(plus key) using this method as well.

NOTE: The crankshaft will turn as the table is moving up or down. **Be sure to remove the crank handle as shown below before moving the table with the digital controller.** If left on the crankshaft, it will rotate and might come in contact with the operator. Always keep the crank handle off the shaft unless you are using it to adjust it up or down manually.





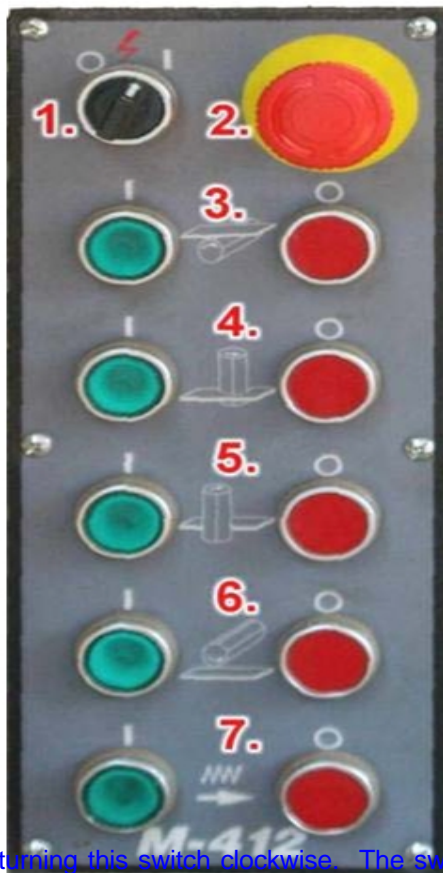
- 1. Crank Handle.
- 2. Crank shaft for manually adjusting table height.

Note: You can manually move the table with the crank handle as long as the master switch is on. However, if you move the table height manually when the master switch is turned off, you will lose this setting and will have to reset the height in the controller.



## Safety Switches

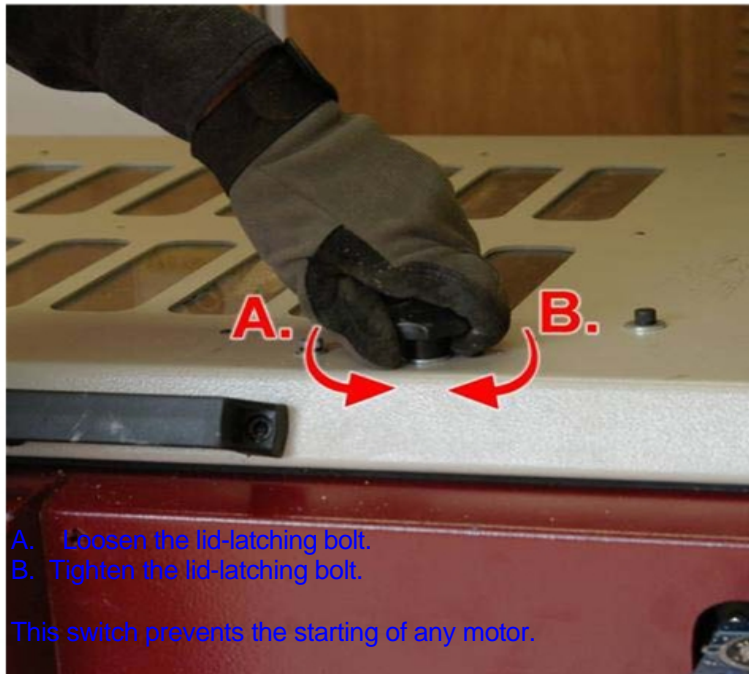
There are two safety switches on the machine. The emergency stop button(2.) is to the right of the Master On/Off switch. This switch, when pressed will immediately shut down the machine if it is running. It will also not allow any motor to start until this switch is reset.

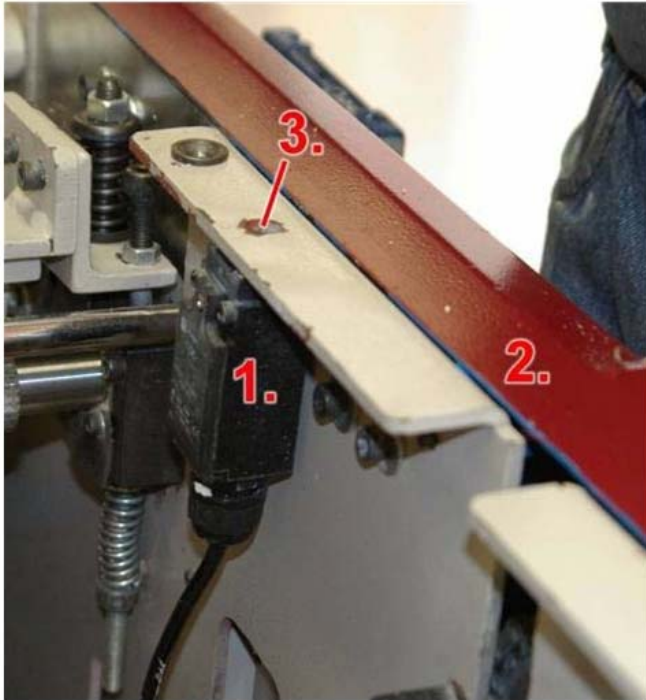


Reset the switch by turning this switch clockwise. The switch will pop back out into its normal setting.

The door switch also will prevent the machine from starting unless the door is completely closed.







1. Lid Safety Switch.
2. Right side of Machine
3. Safety Pin on lid inserts in this hole to engage switch.

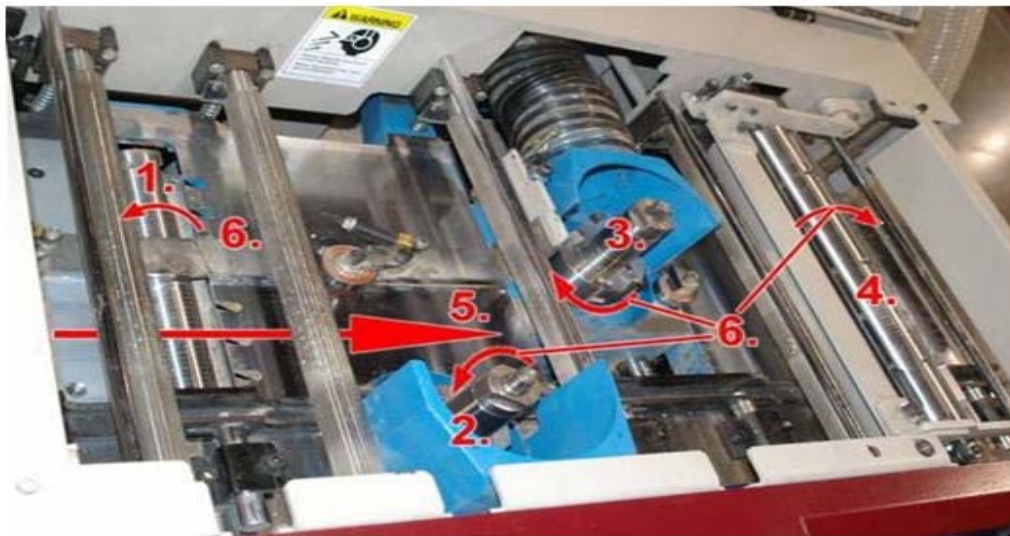
Both of these switches must be set for the machine to be started.

## Setting Up the Machine

The setup of the machine is critical to correct operation. This chapter provides information needed to set the machine properly.

### Machine Overview

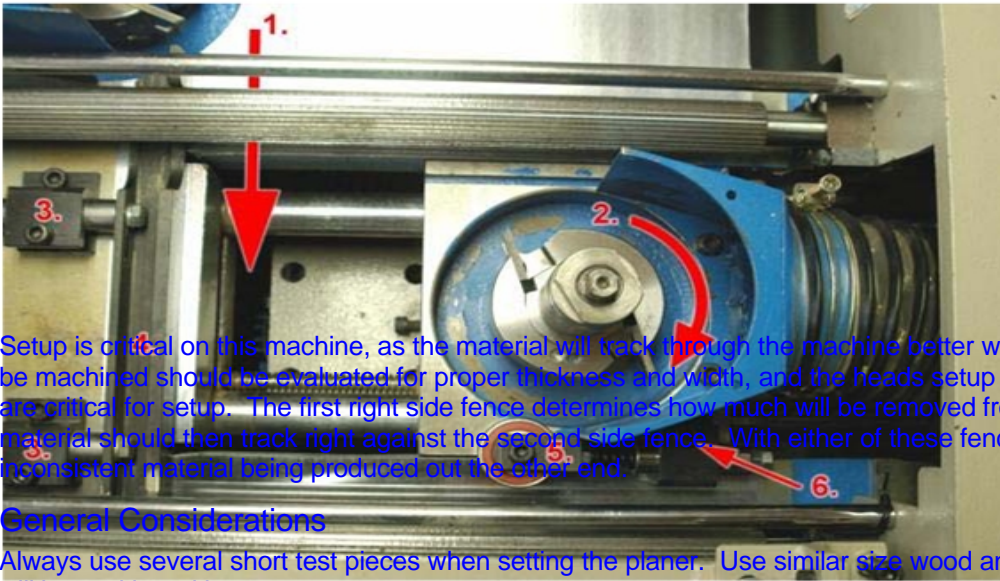
The machine has 4 cutter heads - two in horizontal mode and two in vertical mode.



1. Bottom Cutter Head
2. Right Side Cutter Head (Stationary)
3. Left Side Cutter Head (Moveable to set width).
4. Top Cutter Head
5. Direction of stock through Machine.
6. Arrows show correct direction of rotation of Cutter Heads

The horizontal heads have four slots - two are normally used for straight planing knives and two are available for inserting moulding knives. However, the heads can be set with 4 straight planing knives or with 4 moulding knives.

The side heads that come with the machine have two slots in which either straight cutters (supplied with the machine) or moulding knives can be inserted. Other heads can be fitted onto these spindles, such as corrugated knife heads, or carbide tipped three wing cutters. Taller cutter heads up to 4" can be fitted on the side spindles also.



Setup is critical on this machine, as the material will track through the machine better with the proper setup. The material to be machined should be evaluated for proper thickness and width, and the heads setup up accordingly. The right side fences are critical for setup. The first right side fence determines how much will be removed from the right side of the stock. The material should then track right against the second side fence. With either of these fences set incorrectly, the result will be inconsistent material being produced out the other end.

## General Considerations

Always use several short test pieces when setting the planer. Use similar size wood and type of material to the material you will be working with.

Check the material to be planed for oversized pieces - either too thick or too wide. Remove any pieces that have loose knots or are cracked excessively. Ensure that all material to be planed is below a certain thickness and width. Sometimes pre-planning is necessary to accomplish this. Remember that the less material removed, the better the finish can be, and the less wear and tear on the machine and your tooling. Removing too much material will put stress on the machine and especially the ability of the chip collector to remove the resulting chips.

It is preferable to have one side of the material to be ripped straight, especially certain types of mouldings and flooring.

Support the material to be planed adequately as it is being fed into the machine.

Take the time to properly set up the fences for the tooling you are using. Certain tooling requires different fence setups from the previous setting.

Ensure that adequate chip collection is available and that all ports are open for removing chips.

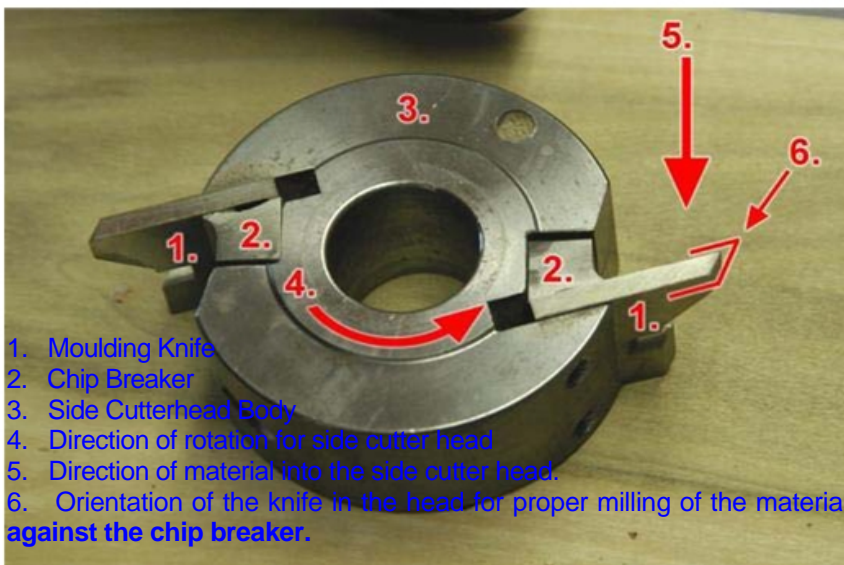
Check for chip buildup in the machine and stop and blow the milling area of the machine clear of chips if this happens. Excessive chip buildup will affect the quality and speed of planing/moulding.



**Make sure that chips do not buildup underneath the machine and up around the motors.**

## **Side Heads**

The two side heads located on each side of the table, operate in opposite directions. One is stationary and the other is moveable via the crank handle on the front of the machine. Both heads are set up in the same way.



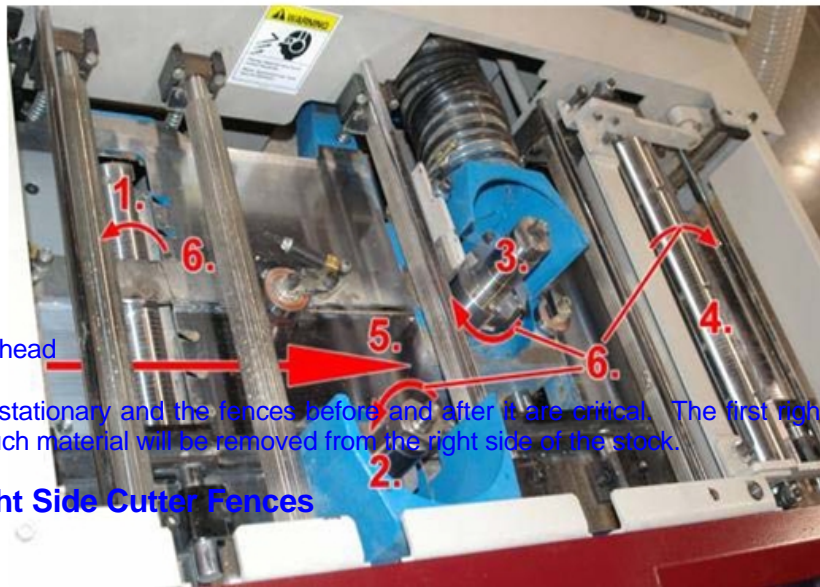
- 1. Moulding Knife
- 2. Chip Breaker
- 3. Side Cutterhead Body
- 4. Direction of rotation for side cutter head
- 5. Direction of material into the side cutter head.
- 6. Orientation of the knife in the head for proper milling of the material.

**Note: The flat side of the knife always is**

## **Right Side Cutter**

The right side cutter is located on the right side of the machine looking down the machine from the infeed end. It is the second cutter that comes into contact with the material being machined. This cutter head can perform straight or moulding cuts on the right side of the material.

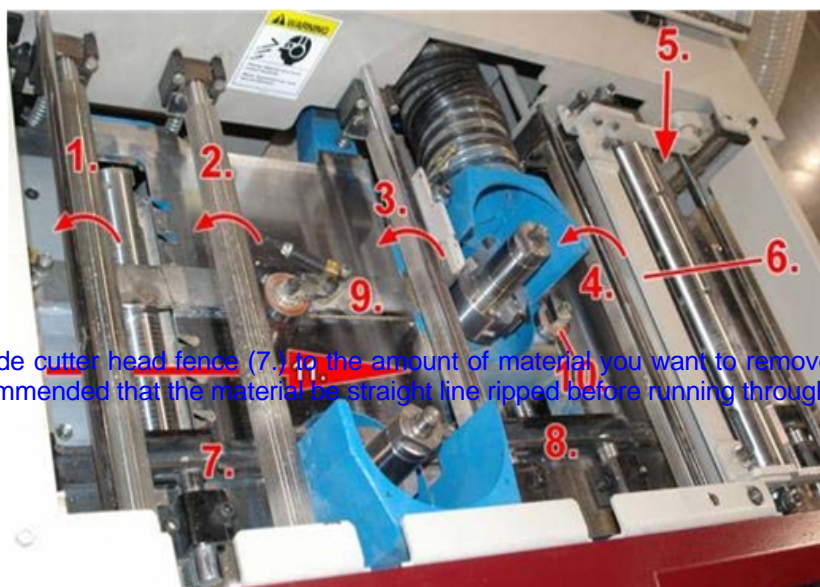




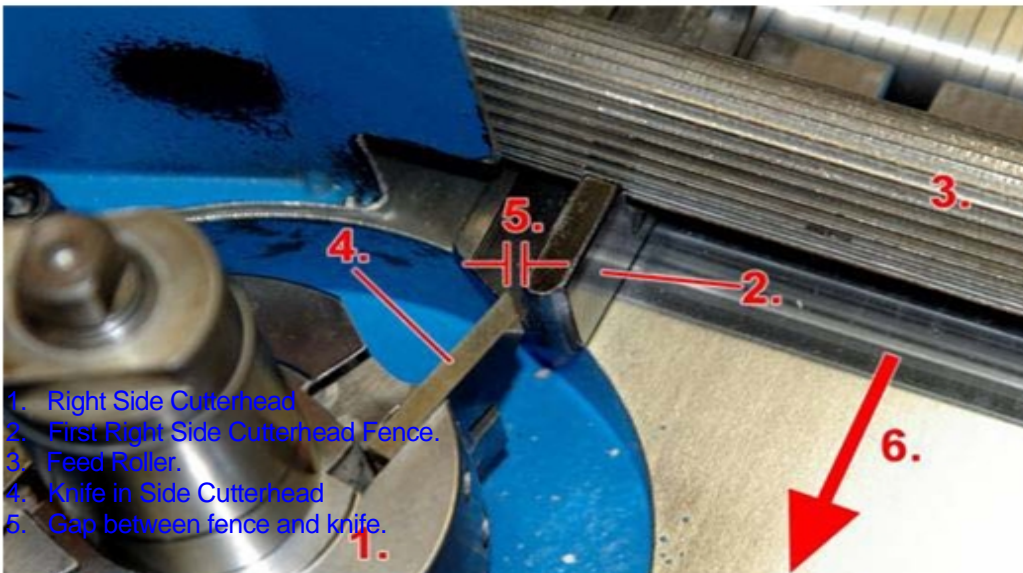
## 2. Right Side Cutterhead

The cutter head is stationary and the fences before and after it are critical. The first right side cutter head fence determines how much material will be removed from the right side of the stock.

## Setting the Right Side Cutter Fences



Set the first right side cutter head fence (7.) to the amount of material you want to remove from the right side of the material. It is recommended that the material be straight line ripped before running through the machine.

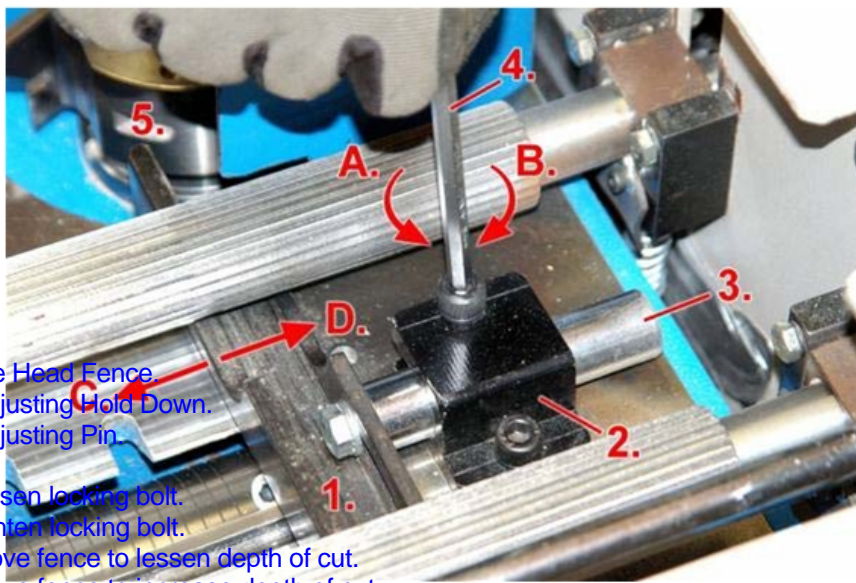


1. Right Side Cutterhead
2. First Right Side Cutterhead Fence.
3. Feed Roller.
4. Knife in Side Cutterhead
5. Gap between fence and knife.

NOTE: The gap above will change as different knives are placed in the head. Be sure to check rotation of the head - that the knife will turn all the way around without impacting this fence before starting.

The fences can be adjusted by loosening the bolts holding the fence in place.





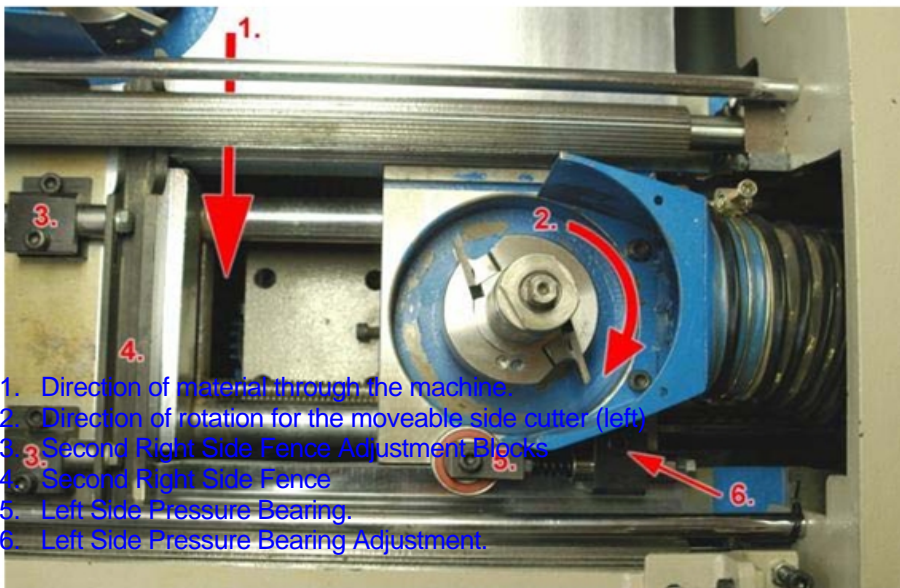
1. First Right Side Head Fence.
2. Side Fence Adjusting Hold Down.
3. Side Fence Adjusting Pin.
4. Allen wrench.
- A. Direction to loosen locking bolt.
- B. Direction to tighten locking bolt.
- C. Direction to move fence to lessen depth of cut.
- D. Direction to move fence to increase depth of cut.

The second right side Cutter Head Fence (8. in top picture) is set to support the finished material. You can do this by running a test piece into the machine and stopping it just prior to hitting the third pressure roller on the left side of the machine. Then move the second right side cutter head fence until it's in contact with the finished edge of the material.

NOTE: This fence improperly set could result in excessive side snipe as material moves through the machine.

## Left Side Cutter

The left side cutter is moveable across the table. This side cutter determines the width of the material.



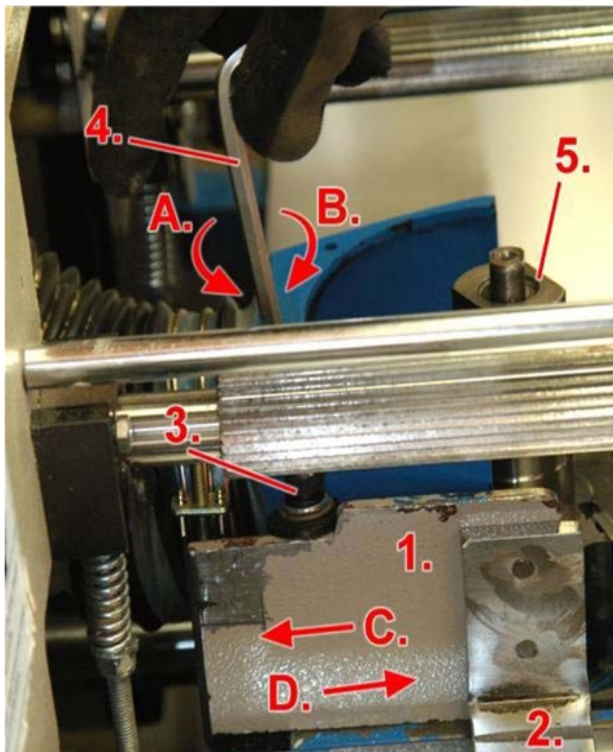


## Setting the Left Side Cutter Side Pressure Bearings

The Left Side Cutter provides the ability to mill varying width stock. The stock should not vary excessively however. The less it varies the better, and preferably not over 1/2" of variation - 1/4" or less is better. It is best to rip your stock to the proper dimension before milling.

The Left Side Cutter provides three side pressure bearings to hold pressure on the material as it moves through the machine. Two are before the cutter head and one is after it.

The first two are set after the side cutter head is positioned in the machine for the proper width. Then the bracket holding the side pressure bearings can be adjusted to apply the proper pressure on the material and to allow for the variance in the stock.



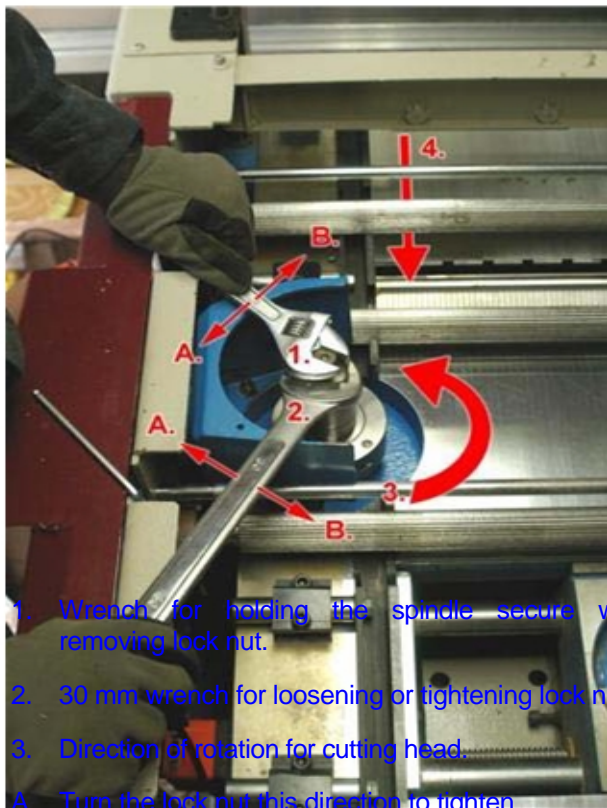
1. Left Side Cutter Head Pressure Roller adjustment Plate.
2. L-Bracket holding two side pressure rollers
3. Adjustment Plate Locking Bolt.
4. Allen Wrench to loosen or tight Locking Bolt.
5. Left Side Cutter Head.
- A. Direction to loosen Locking Bolt.
- B. Direction to tighten Locking Bolt.
- C. Direction to slide L-Bracket to lessen pressure on board.
- D. Direction to slide L-Bracket to increase pressure on board.



The finished material side pressure bearing located just past the left side cutter should be set so that it is 1/16 - 1/8" inside the finished material dimension, so that it applies pressure to the stock as it passes through and keeps the material firmly against the second right side cutter fence.

## Removing Side Heads

To remove the side head, use the 30 mm wrench(supplied) and a 1/2 inch wrench or small adjustable as shown in the picture.



1. Wrench for holding the spindle secure while removing lock nut.

2. 30 mm wrench for loosening or tightening lock nut.

3. Direction of rotation for cutting head.

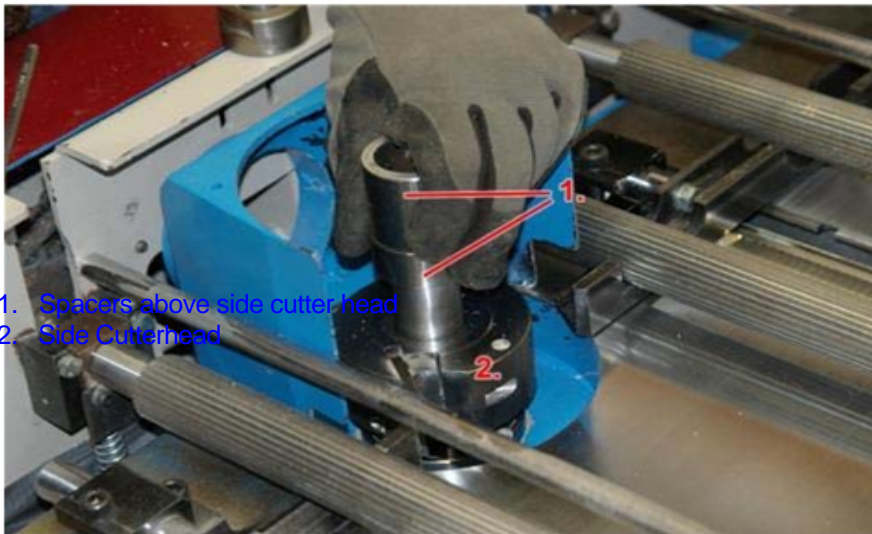
A. Turn the lock nut this direction to tighten.

B. Turn the lock nut this direction to loosen.

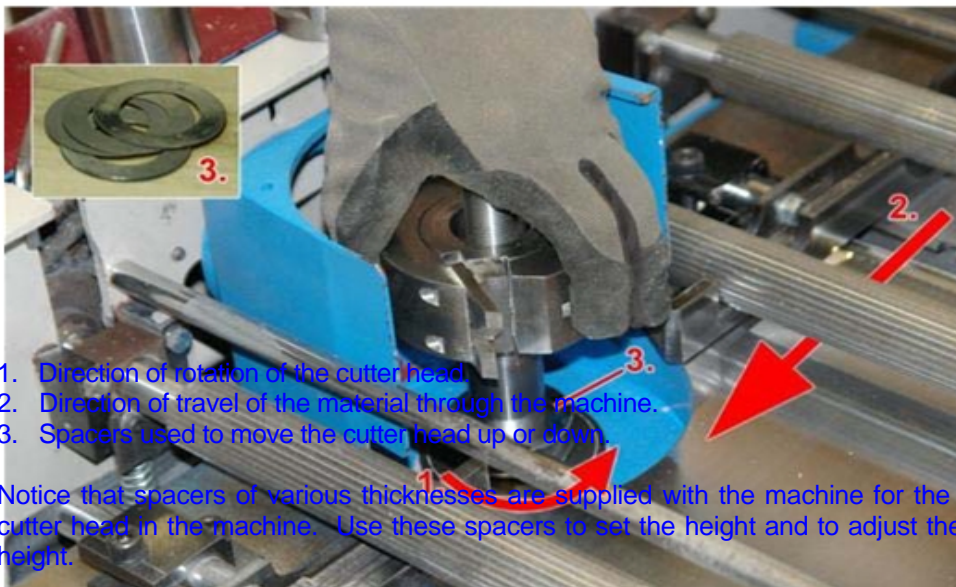
Tip: To avoid hurting hands when loosening lock nut, wear gloves and position the wrench holding the spindle secure against the steel case so that it cannot move and turn the 30mm wrench against it.

Once the lock nut is loose, remove it and then the spacers and the head will slip off. The head will have several spacers on top of it.





1. Spacers above side cutter head
2. Side Cutterhead



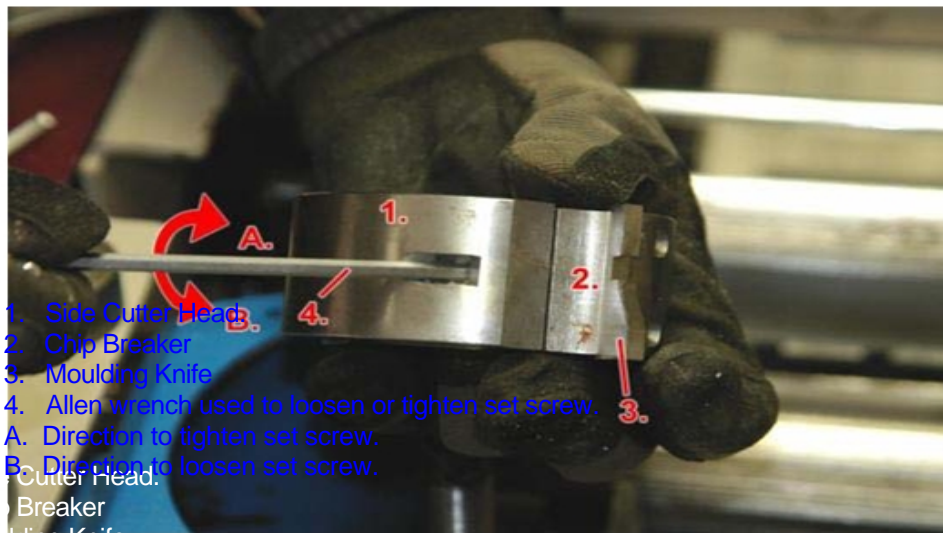
1. Direction of rotation of the cutter head.
2. Direction of travel of the material through the machine.
3. Spacers used to move the cutter head up or down.

Notice that spacers of various thicknesses are supplied with the machine for the purpose of adjusting the height of the cutter head in the machine. Use these spacers to set the height and to adjust the cutter head up or down to the proper height.



## Removing and Inserting Knives in Side Cutter Head

The side cutter heads supplied with the machine use insert tooling. The knives can be changed to different patterns by removing a set screw and chip breaker and inserting a new knife pattern on the pins in the head.





1. Side Cutter Head.
2. Chip Breaker
3. Set Screw that holds chip breaker in place.
4. Moulding Knife

## Side Cutter Head Parts



1. 4 mm Allen wrench - used to loosen or tighten Chip Breaker Locking Screw
2. Chip Breaker
3. Moulding Knife
4. Side Cutter Head Body
5. Chip Breaker Locking Screw.
6. Direction of rotation of the head.
7. Moulding Knife Locking Pins - note, these are removable and can be replaced if damaged.
8. Spacers for adjusting height.

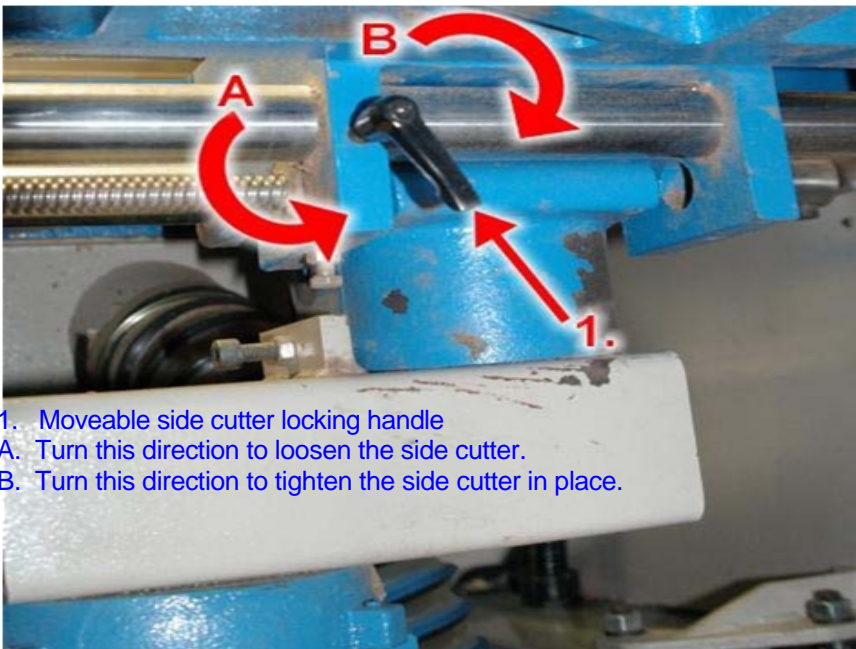




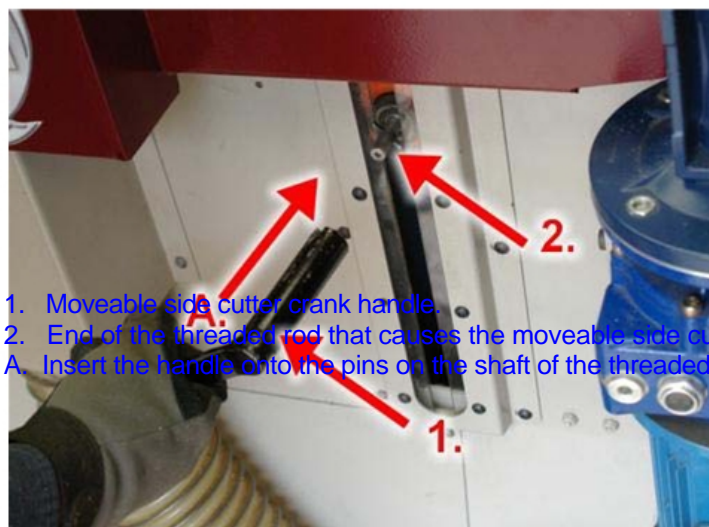
## Moving The left Side Cutter

The moveable side cutter - the left side cutter head - can be moved back and forth across the machine to the desired location. This is accomplished with a crank handle that is located on the front of the machine. This handle is removable once the location has been set so that it cannot be easily moved accidentally.

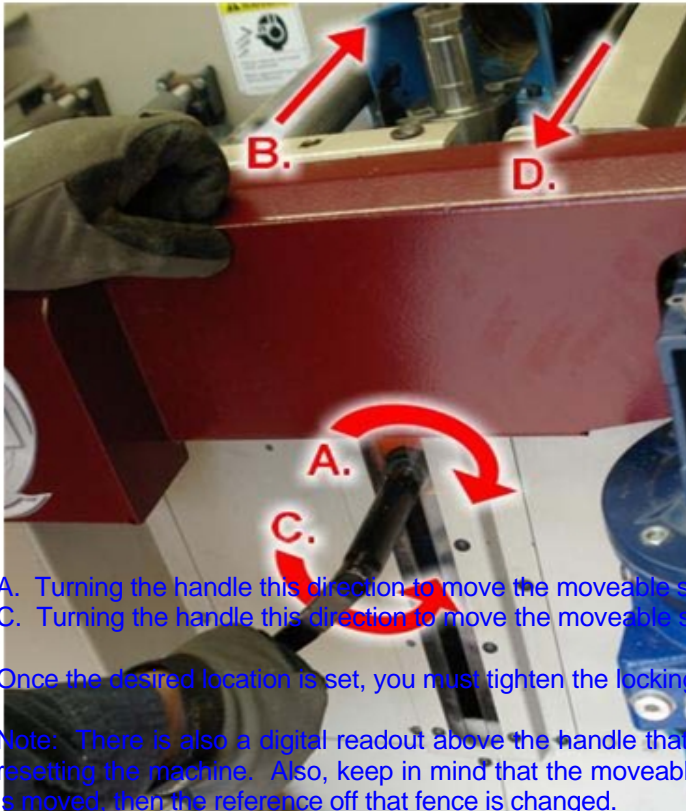
Before cranking the handle, release the moveable side cutter locking handle located underneath the table.



- 1. Moveable side cutter locking handle
- A. Turn this direction to loosen the side cutter.
- B. Turn this direction to tighten the side cutter in place.



- 1. Moveable side cutter crank handle.
- 2. End of the threaded rod that causes the moveable side cutter to move when turned.
- A. Insert the handle onto the pins on the shaft of the threaded rod



- A. Turning the handle this direction to move the moveable side cutter the direction shown(B)  
C. Turning the handle this direction to move the moveable side cutter the direction shown(D)

Once the desired location is set, you must tighten the locking handle underneath the table as shown above.

Note: There is also a digital readout above the handle that is visible inside the machine that can provide you a reference for resetting the machine. Also, keep in mind that the moveable side cutter should be set off the second fence. When this fence is moved, then the reference off that fence is changed.

## Horizontal Heads

The horizontal heads have four slots in which to put tooling. Two normally hold straight planing knives and two are available for moulding knives. These can be positioned in the head using chip breakers that have two pins on which to position the moulding knives.

## Straight Planing Knives

The straight planing knives are inserted in the top and bottom head similarly. Both heads use a chip breaker and jack screws to hold and position the knives at the proper location in the heads.



The chip breaker has locking bolts in the back of it that are tightened to hold the knife in place once it is set at the proper height in the head using the jack screws. The jack screws are adjusted using an Allen wrench. Once the knife is at the proper height, the chip breaker locking bolts are tightened.

The top head is 16" in length and the bottom head is 12" in length. If you are planing narrower lumber, you can use the 12" planer knife in the top head also. For wider lumber, you will need the 16" long knife in the top head.

**The top head planer knives are set to 1mm above the chip breaker. The bottom head planer knife is set to the height of the table just past the knife.**

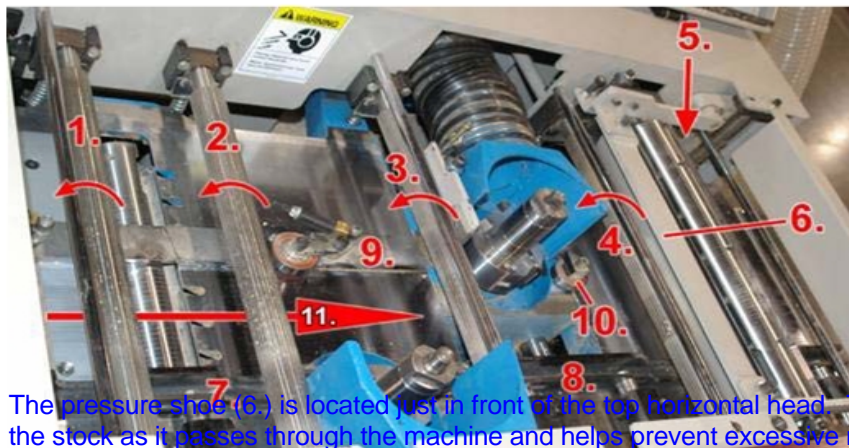
Use a setting block or knife setting gauge to set the knives at the proper height in the heads.

## Profile Knives in Horizontal Head

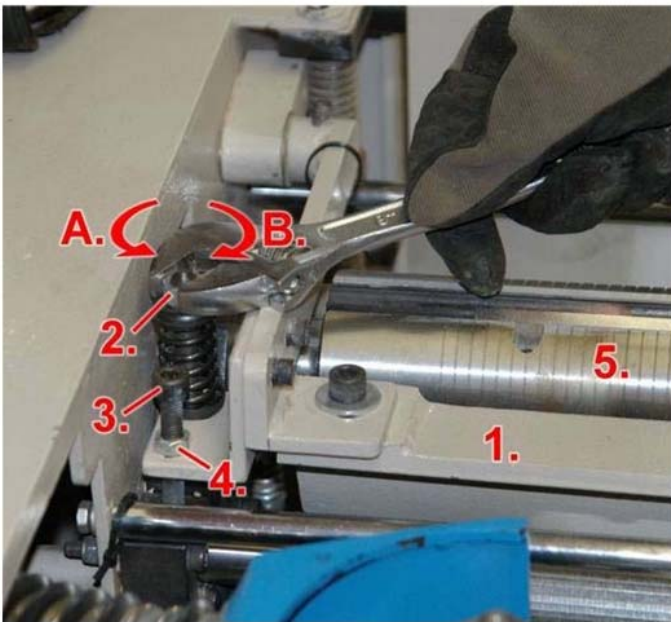
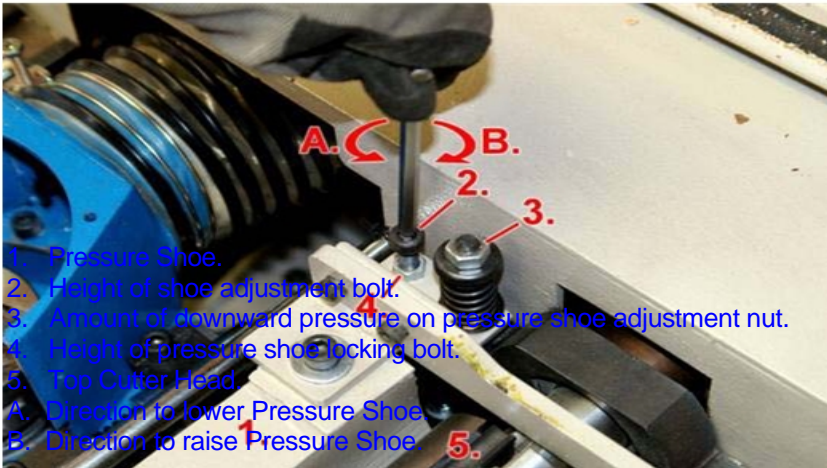
Profile knives can be inserted into the horizontal heads. This is accomplished using small chip breakers with 2 pins on them and one locking bolt in back to lock it into the head. The knives are placed onto the chip breaker and then slid into place in one of the open slots in the head. A pair of profile knives are used when making a profile cut from the head. These are placed on opposite sides of the head and should be lined up exactly from one side to the other. The index marks on the head are used to line up the pair of knives from one side of the head to the other.

**In the top head, profile knives can be made to cut up to 3/4" in depth. In the bottom head, the maximum depth of profile is 1/4".**

## Pressure Shoe for Top Head



The pressure shoe (6.) is located just in front of the top horizontal head. The applies downward pressure to the stock as it passes through the machine and helps prevent excessive movement by the board as it is being milled by the top head. The pressure applied by the pressure shoe is adjustable. Use the pressure shoe adjusting screws and springs to increase or decrease the pressure applied by the pressure shoe.



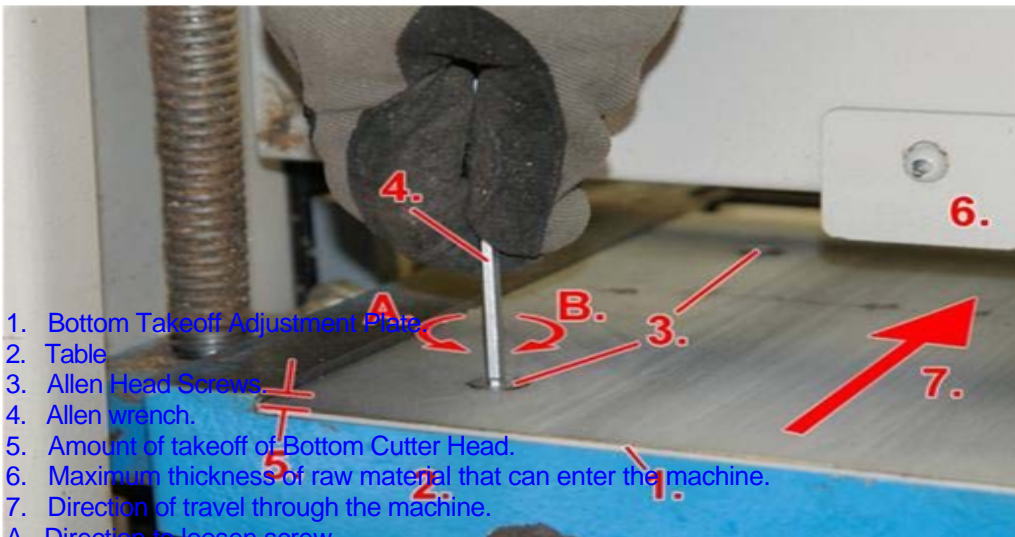
Adjusting the pressure on the pressure shoe.





## Adjusting Takeoff of Bottom Head

The bottom head can remove a maximum of 6mm. To adjust the amount of takeoff by the bottom head, insert or remove metal plates in front of the bottom head. 4 screws hold these plates in place. Remove the screws using an Allen wrench. Add the appropriate plates or remove plates to get the desired amount of removal.



1. Bottom Takeoff Adjustment Plate
2. Table
3. Allen Head Screws
4. Allen wrench.
5. Amount of takeoff of Bottom Cutter Head.
6. Maximum thickness of raw material that can enter the machine.
7. Direction of travel through the machine.
- A. Direction to loosen screw.
- B. Direction to tighten screw.



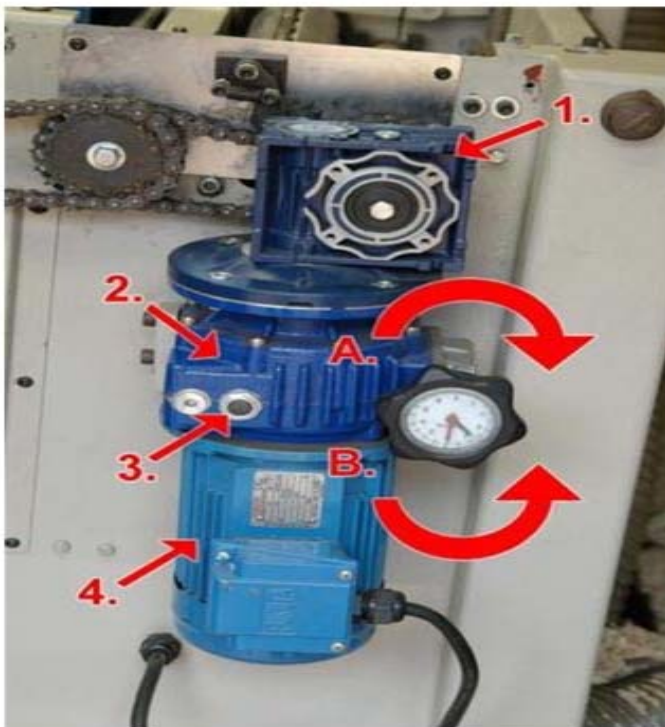
## Feed Speed Adjustment

Feeding speed on the machine can be varied from 10 fpm to 48 fpm.(feet per minute)

Several factors determine the speed at which material can be passed through the machine:

- The finish desired.
- The type of material (hard versus soft)
- The ability of the chip collector to remove chips.
- The width and depth of cut.

Setting the feed speed is accomplished by turning the feed motor speed adjustment knob on the top of the feed motor on the front of the machine.



- A. Turning the knob this direction (clockwise) slows the feed speed.
- B. Turning the knob this direction (counter-clockwise) increases the feed speed.

- 1. Worm Gear
- 2. Gear Box
- 3. Gear Box Oil indicator window.
- 4. Feed Motor

**NOTE: DO NOT TURN THIS KNOB UNLESS THE FEED MOTOR IS ON!**





## Wiring Diagram

